



SEMASS Partnership
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February 8, 2006

Nancy L. Seidman
Massachusetts Department of Environmental Protection
Bureau of Waste Prevention
One Winter Street, 10th Floor
Boston, Massachusetts 02108

VIA OVERNIGHT MAIL

Re: SEMASS Resource Recovery Facility: Material Separation Plan 3 for the
Diversion of Mercury - 2005 Annual Report

Dear Ms. Seidman:

On behalf of the SEMASS Partnership, as it relates to the SEMASS Resource Recovery Facility (SEMASS), attached is the 2005 annual report detailing activities associated with Material Separation Plan "3" (MSP3) for the diversion of mercury from the potential solid waste stream.

Should you have any questions or would like to discuss this further, please call Joanne Qamoos at (508) 291-4427 or Daniel Peters at (508) 291-4436.

Sincerely,

Joanne L. Qamoos

Joanne L. Qamoos
MSP Program Coordinator

Daniel P. Peters

Daniel P. Peters, P.E.
Sr. Environmental Engineer &
MSP Program Manager

Attachment

Cc: T. Klein (3 copies) - DEP-Boston
B. Holdridge - DEP-Boston
T. Michaels, IWSA

J. Walker
M. Wetmore



2005 Annual Report

Material Separation Plan For the Diversion of Mercury

SEMASS Resource Recovery Facility Rochester, Massachusetts

February 2006

Prepared by:

Covanta of SEMASS, L.P.
141 Cranberry Highway
West Wareham, Massachusetts 02576



Material Separation Plan – 2005 Annual Report

I. INTRODUCTION

The SEMASS Partnership is pleased to submit its fifth Material Separation Plan (MSP) Report for the SEMASS Resource Recovery Facility (SEMASS RRF) covering the 2005 calendar year. The SEMASS Partnership (SEMASS) owns and operates the SEMASS RRF in Rochester, Massachusetts. Covanta of SEMASS, L.P. is the managing general partner of SEMASS. SEMASS provides solid waste processing and disposal services for more than sixty contracted communities located primarily in southeastern Massachusetts, Cape Cod, and the Boston vicinity. The SEMASS RRF receives and processes approximately 1,000,000 tons of solid waste annually. Electricity created from the processing of solid waste at the SEMASS RRF is sufficient to power approximately 75,000 households. Between 45,000 and 50,000 tons of recyclable ferrous and non-ferrous metals are typically reclaimed each year from waste processing at the SEMASS RRF.

The MSP activities for the 2005 calendar year were implemented in accordance with Material Separation Plan 3 (MSP3). MSP3 was approved by the Department of Environmental Protection (DEP) on January 24, 2005. The document was developed to guide SEMASS' continuing effort to educate and assist the SEMASS customer base in meeting the goals of the program. These goals include: 1) the identification of products in the solid waste stream that contained significant quantities of mercury and which were frequently disposed; 2) the dissemination of instructional and outreach support to educate the public about the reasons to reduce mercury in the waste stream and how to recover mercury-containing products; 3) to aid the SEMASS customer base in implementing removal and recycling programs, while supporting or supplementing existing programs; and 4) management of MSP activities involved with the above stated goals in a cost effective manner.

The MSP offered flexibility in the range of programs available to meet the list of goals described above. During 2005, SEMASS sought to help each of its customers maintain and expand programs that had been begun over the previous few years. If requested, a SEMASS community that didn't have a Universal Waste Shed was provided one so that they could provide safe storage of mercury-containing materials. SEMASS also provided communities with mercury spill kits and training to help control potential mercury releases from damaged mercury-bearing devices. SEMASS then continued to implement mercury removal activities in the form of thermometer exchange programs, reimbursement for the removal and recycling of mercury-containing products,

and thermostat collection programs. A wide variety of public outreach and education activities were undertaken by SEMASS and the IWSA. During 2005, some additional mercury removal programs were begun including a boatyard/marina collection program for mercury containing products, a trial program of reclaiming mercury switches from various "white goods", and an outreach program to medical/dental facilities.

In July 2005, American Ref-Fuel Company merged with the Covanta Energy Corporation. Due to the business merger, American Ref-Fuel of SEMASS changed names to Covanta of SEMASS, L.P. The SEMASS Partnership remains unchanged. Other than a change of names and logos on various letters and reports, there was no change to the scope, activities or implementation of the Material Separation Plan program. SEMASS continued to follow and implement program activities in accordance with the approved MSP3 Plan.

II. PLAN ACTIVITIES

1.0 IWSA EDUCATION AND OUTREACH.

Integrated Waste Services Association's (IWSA) activities in support of Massachusetts' Waste-to-Energy Facilities' Material Separation Plan for 2005 largely continues the direction set in prior years. This section describes the activities involved in the design, implementation and operation of IWSA's Program in support of the five waste-to-energy plants operating in Massachusetts and their Mercury Recovery Programs (MRP). Each facility's MRP is community focused, locally based and operated; and the IWSA activities are designed to support in a coordinated fashion the MSPs on a regional basis.

IWSA Regional Program activities for 2005 consisted of the following elements:

- Print & Radio Advertising for "Keep Mercury From Rising"
- Evaluation & Analysis of the "Keep Mercury From Rising" campaign
- Revision & Update of Website www.keepmercuryfromrising.org
- Availability of print and video materials to facilities, the public and media

Objectives.

The Integrated Waste Services Association coordinated the regional education / outreach program for five Massachusetts' waste-to-energy facilities including facilities located in Saugus, North Andover, Millbury, Haverhill, and SEMASS.

In 2005, the Regional Outreach Plan supported individual facility programs by the continued promotion of the media campaign, "Keep Mercury from Rising". This campaign included two waves of radio advertisements designed to reach the broadest possible audience. The campaign used targeted advertising educating the listeners about the concerns related to mercury. The advertisements also encouraged residents to contact their local health departments to receive more information about mercury and find out where in their communities they could dispose of mercury containing devices.

The objectives for 2005 were met and included the following:

- The Regional Outreach Program continued to raise awareness about mercury-containing products in the home and the proper handling and disposal of these products;
- The Program provided information and promoted local recycling events;
- The Program continued to build an integrated communications program that leveraged opportunities for incremental, free media, and worked synergistically with the efforts of individual waste-to-energy facilities.

Approach.

A public survey was completed in mid-2005 measuring the effectiveness of the educational campaign "Keep Mercury From Rising." Findings from this survey guide the development of the Regional Program. The website, www.keepmercuryfromrising.org, continues to be more user-friendly, and includes more contact information and contractor material, as well as continuing to provide information and assistance with recycling of mercury-containing products to the general public. IWSA produced five videos in 2003 for each waste-to-energy plant, and these videos are available on the website. The videos show the unique and effective programs now in place to keep mercury containing products out of the waste stream.

1.1 Advertising.

Analyzing past results, it was determined that the radio ads reached a greater target audience than the print advertisements in newspapers. Rather than purchasing one wave of radio advertisements, IWSA purchased two separate three-week radio buys in 2005 and advertised on radio stations that broadened our geographic outreach. Radio is a targeted medium that provides cost-efficient mass communication and built frequency of message delivery.

The first three-week radio buy was implemented June 6-26, 2005. Markets targeted by the radio buy were Boston, Worcester, New Bedford, and Cape Cod. In order to maximize the dissemination of the message, IWSA purchased another three-week radio buy that aired September 26 through October 16, 2005. Based on the results of the survey conducted after the radio ad, we believe the plan was successful in increasing public awareness. By transferring the budget for print advertising to a second radio wave almost five months later, we have broadened the opportunities for a successful campaign.

During development of the radio advertising program, SEMASS sought and received valuable input from our regional recycling staff and organizations such as the South Shore Recycling Cooperative, Cape Cod Cooperative Extension, the MADEP Municipal Assistance Program Coordinators, and others. This feedback was conveyed to IWSA and was instrumental in modifying the radio advertisement program to include those radio stations that our communities felt would provide the best outreach possibilities for the MSP program.

1.2 Web-based Tools.

The website, www.keepmercuryfromrising.org, is user-friendly and provides additional information:

The site provides navigation under the masthead and incorporates information in the following categories:

- Home – includes background on Keep Mercury From Rising and information on calling 1-866-9MERCURY for more information about safe disposal options.
- Drop-off sites – provides information on where to drop-off mercury containing items.
- Spills – provides a variety of information on actions one should take in the event of a mercury spill.
- FAQs – provides answers to five common questions.
- Video/ Audio – provides the five videos developed by the facilities as well as an audio file of the advertisement that aired for six weeks in 2005.
- Links – links were proactively sought and added to this page and efforts were made to increase the number of other website that link to <http://www.keepmercuryfromrising.org>.

- Contractors - contains useful information and links for sources of mercury related information.

1.3 Print Materials.

IWSA continued to make available education brochures and print information developed in 2002-2003. The basic "Keep Mercury From Rising" message is consistent with media formats.

1.4 Video.

The five-minute "Keep Mercury from Rising" educational video was completed for each facility in 2003 and continued to be promoted in 2005. The video explains the need to recycle mercury-containing products and the efforts undertaken by Massachusetts and the waste-to energy facilities to prevent mercury from entering the environment.

The video continues to be used at the SEMASS RRF for educational purposes during tours and other meetings. Copies of the video have been made available to cable access television stations and a "B-roll" of visuals and sound is available for media covering MSP events. Copies of the video also have been given to local public officials to be shown at meetings, schools, senior citizen centers, and other organizations that would benefit from viewing the video. As noted above, the video also may be viewed at the website.

1.5 Evaluation Tool.

The effectiveness of the regional education campaign is in large part measured by an annual research survey. The polling is designed to measure positive changes in public attitudes and behaviors, as well as the receptiveness of the message. The survey questionnaire was in the field June 27-29, 2005, and consisted of 400 completes, providing a 95% confidence level. The results showed that more people understood which household products contained mercury. In addition, fish advisory awareness scored its highest total in five years. Waste companies were viewed as the least responsible for the safe disposal of a mercury thermometer, compared to owners, manufacturers, and the government. The survey did find that exactly 60% of respondents would pay \$33-45 to replace a \$30 circular wall thermostat with a non-mercury replacement. In addition, another 20% would pay \$60 or more for the non-mercury replacement.

2.0 LOCAL EDUCATION AND OUTREACH.

2.1 Community and School Outreach.

Local education and outreach has proven to be an important component of executing the MSP. By making the residents within SEMASS' contracted communities more aware of how to properly dispose of mercury containing products and elemental mercury, and of the various Activities offered by the MSP, the greater the likelihood of success.

A bullet summary list of the various local education and outreach activities completed by SEMASS during 2005 is provided below:

- On January 13th, SEMASS met with representatives from the Massachusetts Department of Environmental Protection or MADEP (Lori Segall, Edith Demello) and regional municipal assistance coordinators (Rosemary Nolan, Kathi Mirza) at our facility to introduce the Environmental team handling the MSP and discuss cooperative MSP approaches to the program. These staff were consulted and included in periodic communications and correspondence throughout the 2005 year.
- SEMASS conducted several outreach sessions to area schools related to mercury awareness. SEMASS provided mercury awareness materials, led "mock" spill cleanup activities, showed the IWSA outreach video and promoted the *Keep Mercury From Rising* website, and led discussions on mercury and the environment. These sessions include:
 - On January 19th, SEMASS conducted outreach for an instructor and fourteen (14) "environmental club" students at Wareham High School.
 - On February 2nd, SEMASS conducted outreach for three instructors and eighteen (18) freshman/junior environmental technology students at the Upper Cape Cod Regional Technical School in Bourne, MA
 - On February 15th, SEMASS conducted outreach for two instructors and ninety (90) 5th grade students at the Wareham, MA Minot Forest elementary school.
 - On February 28th, SEMASS conducted outreach for multiple instructors and one-hundred and thirty (130) 5th grade students at the Wareham, MA Decas elementary school.
 - On April 27th, SEMASS conducted outreach for an instructor and twenty-four (24) 3rd Grade students at Saint John the Evangelist School, Canton, MA.

- On December 20th, SEMASS hosted a tour of the SEMASS RRF for an Environmental Technology Instructor, and several of her senior class students from the Bristol County Agricultural High School, Dighton, MA
- With SEMASS support, the South Shore Recycling Cooperative (SSRC) sponsored local radio advertisements on WATD (FM95.9) in Marshfield, WPLM (FM99.1) in Plymouth, and WJDA (AM 1300) in Quincy during April to promote mercury awareness and general recycling.
- SEMASS provided status updates on the MSP program to all municipal attendees at the Council of SEMASS Communities (COSC) meetings on June 16, 2005 and December 15, 2005. These meetings included updates of program status, notices of upcoming MSP activities, and question/feedback discussion with our community representatives on the program.
- SEMASS assisted Robert Button from the *Barnstable Patriot* with an article he was writing, "Where Does the Trash Go?" John Walker, SEMASS Plant Manager, gave him a tour of the plant for photographs on August 2, 2005. SEMASS also assisted him with facts/figures for the plant along with the tour. This article was published in the *Barnstable Patriot* on [DATE].
- SEMASS attended the SWANA-Mass Chapter 3rd Annual Solid Waste Conference and Trade Show on September 12th - 13th held at the Cape Codder Resort & Spa in Hyannis, MA. Several contacts with community recycling coordinators and MADEP representatives were accomplished including the Department's new MSP Program Oversight Manager(Tina Klein).
- SEMASS attended the South Shore Recycling Cooperative monthly meeting held at the Whitman Town Hall in Whitman, MA on September 21st.
- SEMASS worked with and supported the Cape Cod Cooperative Extension (CCCE) and its staff regarding outreach to schools.
- On October 14th, SEMASS sent one-hundred and ninety five (195) MSP Program postcard notices to our municipal contacts with updated Covanta Energy & MSP Coordinator (Joanne Qamoos) contact information. The postcards highlighted opportunities available to our communities as part of the MSP program.

- SEMASS attended the Sturdy Memorial Hospital Health Fair which was held on November 3rd in the City of Attleboro. Working in conjunction with the Attleboro Board of Health, SEMASS provided outreach materials and information on mercury awareness to fair attendees and facility staff.
- SEMASS supported the Coalition for Buzzards Bay with a donation of \$100.00 on November 18th.
- During December, SEMASS developed and printed new brochures which describe the "What, Why & Where of Mercury" for use in community, school and business outreach activities for Tasks 2.1 and 2.2.

As part of local education and outreach, SEMASS continued to support the Educational Leadership for Civic Responsibility (ELCR) organization. ELCR is a regional non-profit organization made up of educators and administrators in five school districts in partnership with higher education. ELCR's mission is to promote social action and civic responsibility through service-learning in K-16 educational institutions. Another part of ELCR's mission is to develop strong school, community and business partnerships to serve the social and environmental needs of communities through the Community Service Learning (CSL) organization. The group of schools that SEMASS has worked with includes elementary schools, middle schools and high schools in the Towns of Carver, Marion, and Wareham.

The ELCR/CSL activities completed in 2005 year are highlighted below:

- Provided mercury outreach and support materials to Educational Leadership for Civic Responsibility (ELCR) for conference attendance in March.
- SEMASS sponsored several "mini-grant" proposals through ELCR/CSL including: a) student research on mercury effects on the environment, b) Annual Household Hazardous Waste Day outreach, c) mercury awareness for Wareham Middle School (5th Graders), d) and assistance with mercury thermometer exchange & float switch awareness and outreach activities.
- The Educational Leadership for Civic Responsibility (ELCR) in conjunction with SEMASS sponsored several mercury awareness articles written by Wareham school students in the April 2005 issue of *Pollution Solutions*, a local newspaper publication in the South Coast area.

- SEMASS issued a letter of reference to ELCR and the Wareham Community Service Learning in support of their CHESP grant application to the state.

2.2 Business Outreach.

In 2005, SEMASS' outreach to businesses was principally spearheaded by our mercury "location" contractor, Pozitive Environmental Solutions, Inc. (PESI). Additional business outreach efforts were conducted by SEMASS as part of Task 3.0 activities including: Medical and Dental Facilities (see Section 3.1), the Thermostat Program (see Section 3.4), the Boatyard Marina Program (see Section 3.7), and the White Goods/ Appliance Program (see Section 3.8). Refer to Section 3.0 for a discussion of those business outreach and reclamation efforts. PESI's efforts were focused on the search and location of businesses with potentially large sources of mercury. These efforts primarily involved investigation of hospitals and medical facilities, but also other businesses as well. PESI's business outreach and reclamation efforts are described in Section 3.0 as well.

At the requests of some of our community members in 2005, SEMASS began to develop a new Business Outreach Program to amend the scope of our current MSP3 Plan. Ideas related to the revised business outreach program were developed, discussed with those key community members, as well as MADEP. These ideas include: targeting tanning salons and businesses in the communities, educating them about mercury reclamation, offering incentives for proper reclamation of mercury devices, and reimbursement of a portion of their costs as part of the MSP program. In December, a preliminary revision to the MSP3 Plan was prepared and submitted to the Department for feedback and input. Additional feedback was solicited from the SEMASS communities and regional recycling organizations in January 2006. SEMASS plans to implement this program in early 2006.

As noted in Section 2.1, SEMASS developed "What, Why & Where of Mercury" brochures to be distributed to various businesses in the communities as informational material. These will be used and distributed in 2006 upon approval of the revised business outreach program.

2.3 Mercury Handling and Awareness Training.

Our mercury awareness, handling training contractor, HAZMATEAM, Inc. of Hudson, NH, provided multiple training sessions for SEMASS communities at various locations during 2005. Each training session was approximately 2 ½ hours in duration and covered various aspects of mercury including its physical characteristics, health effects, handling and storage, spill management, and its effect on the environment. The training was available to anyone from our SEMASS communities such as school representatives, DPW personnel, and

emergency response personnel. Mailers were sent out before each of the mercury awareness training session to promote interest and attendance.

HAZMATEAM, Inc. completed four (4) training sessions for SEMASS communities on 3 different days. Two of these training sessions were held at the Rockland Town Hall on March 29th and the Cohasset Transfer & Recycling Station on March 31st. The other two sessions were held in Wrentham on October 19th.

Follow-up letters, information and materials were sent to all communities who attended training sessions including: mercury spill kits, a list of spill mitigation contractors and contact information, improved mercury hazard communication signage, and methods to determine if a spill had occurred in a community's universal waste shed.

3.0 MERCURY REDUCTION / RECYCLING PROGRAMS.

3.1 Medical and Dental Facilities.

For 2005, Task 3.1 focused primarily on the collection and recycling of mercury-containing sphygmomanometers (blood pressure cuffs/monitors) with replacement of some cuffs with non-mercury units. In addition to medical facilities, the approved MSP3 plan included scope targeting dental facilities to reclaim elemental mercury.

To support SEMASS' efforts in collecting mercury containing blood pressure monitors, Pozitive Environmental Solutions, Inc. (PESI) of Stoughton, MA was engaged. In addition to SEMASS' own efforts, PESI contacted various medical facilities to determine if they had mercury-containing blood pressure monitors and whether SEMASS could replace them with non-mercury units.

During 2005, PESI conducted a telephone campaign to contact various medical facilities in the SEMASS service area in an effort to collect mercury containing blood pressure cuffs/monitors. If these facilities had mercury containing devices, an offer was made to reclaim them as part of the MSP program. In conjunction with PESI, SEMASS sponsored clean-out events at four medical facilities:

- Quincy Medical Center, Quincy, MA; This cleanout reclaimed the following mercury items: thirty-six (36) blood pressure cuffs, seven-hundred twenty (720) fluorescent lamps of various lengths, eight-two (82) u-tube lamps, and thirty-two (32) compact lamps.

- Sturdy Memorial Hospital, Attleboro, MA; This cleanout reclaimed the following mercury items: eighteen (18) blood pressure cuffs, sixty-nine (69) pounds of elemental mercury and 1318 fluorescent bulbs of various lengths. SEMASS also provided funding towards replacement of mercury blood pressure cuffs with non-mercury units.
- Massachusetts Hospital School, Canton, MA; This cleanout reclaimed the following mercury items: fifty (50) large switches, one-thousand nine-hundred sixty-seven (1967) fluorescent tubes of various lengths, ninety-seven (97) u-tube lamps, two-hundred sixty-seven (267) compact lamps, ninety-six (96) HID lamps and nine (9) circular lamps.
- Brockton Hospital, Brockton, MA; This cleanout reclaimed the following mercury items: six (6) blood pressure cuffs, three (3) large switches and three (3) large thermometers.

In March 2005, SEMASS also conducted outreach to dental facilities in our program area. Letters were sent to one-hundred and seventy-one (171) dental offices and four-hundred and fifty-five (455) dentists detailing opportunities with the MSP program. SEMASS received a large volume of requests related to the separate, MADEP-sponsored initiative requiring dental amalgam wastewater filters at all dental facilities. Dental professionals inquired whether SEMASS would purchase and/or reclaim the dental amalgam wastewater filters. SEMASS could not meet these requests related to the amalgam filters. Based on our understanding, these filters cannot be processed or reclaimed by our usual mercury contractors (Onyx/CRS). This was due to: a) lack of permits & infrastructure to handle the "biohazard" characteristics of the filters, b) the amalgam mixtures of mercury/copper/silver which require a more sophisticated separation method, and c) the unlikelihood of these filters ending up in the solid waste stream. It is our understanding that these filters require processing by a specialty contractor in the Midwest.

Unfortunately, only a handful of dental facilities had other sources of elemental mercury that could be addressed. SEMASS, through our contractor, ONYX Environmental, Inc. completed cleanouts of these elemental mercury sources at the following dental facilities:

- Allen Dental Associates, Braintree, MA
- Drs. David & Howard Jacobs, Rockland, MA
- Dr. John Friedman, Attleboro, MA

Due to the efforts of the Cape Cod Cooperative Extension, ONYX Environmental removed four (4) mercury bearing devices from Cape Cod Ear, Nose and Throat

Specialists, Hyannis, MA in July 2005 and one (1) pound of elemental mercury from the dental offices of Dr. Robert DeMaggio, Hingham, MA in August 2005. The 4 units from Cape Cod Ear, Nose and Throat Specialists were collected and SEMASS provided funding towards their replacement.

3.2 Thermometer Exchange Programs.

SEMASS continued to offer the communities opportunities for exchanging glass fever thermometers containing mercury with digital thermometers that were purchased by SEMASS. Although activity on this task continues to decrease, thermometers remain the most commonly recognized mercury-containing device. To inform the SEMASS customers of this opportunity, various communication methods were used throughout the year including presentations at Council of SEMASS Communities (COSC) meetings, training sessions, informational mailings, telephone calls and personal meetings with community representatives/officials. SEMASS used these communication tools to advise and provide its customers with the necessary information to assist them in implementing a thermometer exchange program.

The communities employed various types of mercury thermometer collection and exchange events throughout the year. Some of these events occurred on a single day, while others continue to occur on an ongoing basis. On occasion, several communities worked together to sponsor a thermometer cooperative exchange event. Household hazardous waste collection days were also used by the communities as an opportunity for collecting mercury thermometers and exchanging them for digital thermometers.

Several of the communities also held thermometer exchange events on an ongoing basis at specified location(s) within a community. These locations varied, but were typically at the Boards of Health offices, Town Halls, transfer stations and/or Department of Public Works yards. Communities that provided this type of thermometer exchange opportunity gave the local residents more opportunity to participate.

A bullet list of some of the various thermometer exchange events is detailed below:

- SEMASS provided support funding to the Town of Braintree Recycling Committee for thermometer exchange events during Spring and Fall 2005 plus a spring Household Hazardous Product (HHP) event. On April 28th SEMASS provided three-hundred (300) thermometer brochures to support their HHP event.

- SEMASS supported the Cape Cod Cooperative Extension's (CCCE) efforts at ongoing thermometer exchange events on Cape Cod. On January 20th, SEMASS provided five-hundred (500) non-mercury fever thermometers and one-hundred (100) Dunkin' Donuts™ coupons plus universal waste labels for CCCE's ongoing efforts.
- SEMASS supported the Wrentham Recycling Committee's Household Hazardous Waste Day on May 14th plus ongoing mercury exchange events. On May 3rd, SEMASS funded advertisements run in local newspapers supporting these events.
- SEMASS supported the Town of Scituate's ongoing thermometer exchange activities by providing one-hundred (100) digital, non-mercury fever thermometers on May 31, 2005.
- On June 21st SEMASS provided the Town of Randolph with one-hundred (100) digital, non-mercury fever thermometers to support their ongoing thermometer exchange activities.
- On October 26th, SEMASS supported the City of Attleboro with one hundred and twenty-five (125) digital, non-mercury, fever thermometers, along with print and promotional materials for the Health Fair at Sturdy Memorial Hospital held on November 3, 2005.
- On September 8th SEMASS supported the Town of Wrentham with one hundred (100) digital, non-mercury fever thermometers, fifty (50) one-dollar (\$1.00) Dunkin' Donuts™ coupons and some ballpoint pens for their thermometer exchange activities they have scheduled for "Wrentham Day" held on Saturday, September 10th.
- On September 26th SEMASS supported the Town of Braintree Recycling Committee with one-hundred (100) digital, non-mercury fever thermometers to support their ongoing thermometer exchange activities.
- On September 27th SEMASS supported the Cape Cod Cooperative Extension with two-hundred (200) digital, non-mercury fever thermometers and fifty (50) Dunkin' Donuts™ coupons for their ongoing thermometer exchange activities.
- On September 28th, SEMASS supported the Town of Sharon with one hundred (100) digital, non-mercury fever thermometers for their ongoing thermometer exchange activities.

- On October 26th, SEMASS supported the South Shore Recycling Cooperative with two-hundred and fifty (250) digital, non-mercury fever thermometers and one hundred (100) Dunkin' Donuts™ coupons for their on-going thermometer exchange activities.
- On December 12th, SEMASS supported the South Shore Recycling Cooperative with funding support related to costs for local radio advertisements in conjunction with Task 3.3.
- During December, SEMASS procured additional supplies of Dunkin Donuts™ gift checks for future thermometer exchange events in conjunction with Tasks 2.2, 3.2 and 3.4.
- SEMASS supported the City of Attleboro Board of Health with three-hundred and fifty (350) digital, non-mercury fever thermometers for their ongoing thermometer exchange activities.

SEMASS supported any communities that wanted to sponsor a thermometer exchange. SEMASS provided assistance, guidance and the necessary equipment for its success. In the process of working with the communities to develop a thermometer exchange event, SEMASS recognized that flexibility was necessary to meet a specific community's needs.

During November-December, SEMASS investigated alternative, non-mercury thermometers that did not use button cell batteries. Our prior thermometers were "mercury-free" digital type, but were still powered by a button cell battery that contains a small amount of mercury. An alternate-type of thermometer was found that does not require batteries and is reusable. These will be procured for use going forward in 2006.

3.3 Community Reimbursement.

SEMASS allocated funds to reimburse communities for the cost of contracting with a vendor to properly dispose or recycle mercury containing devices that they collected through various initiatives such as thermometer exchanges and household hazardous product days (HHP days). In addition to reimbursing the cost to reclaim these devices, SEMASS also supported the community household hazardous product or hazardous waste collection days, with various methods such as advertisements, brochures, etc. in an effort to promote their collection.

SEMASS conducted two (2) certified mailings for the mercury reimbursement to our list of community contacts in January and July. Additional reminders were provided to the representatives at COSC meetings. In these certified mailings, each community received a cover letter explaining the process and a

reimbursement form to be completed prior to receipt of reimbursement for their mercury disposal/recycling costs.

- SEMASS issued reimbursement letter requests to one-hundred and seventy-eight (178) contact persons of our sixty-two (62) long-term customers/ municipalities on January 4, 2005. These letters offered reimbursement for MSP-associated costs for the period of July 1st - December 31st, 2004.
- SEMASS issued reimbursement payments to twenty-one (21) municipalities/long-term customers as requests were received. Qualified expenses (mercury-related items) were reimbursed at 100% of costs. This equals a participation rate of +34% with average participation at +51% in 2004.
- SEMASS issued reimbursement letter requests to one-hundred and seventy-five (175) contact persons of our sixty-two (62) long-term customers/ municipalities on July 5, 2005. These letters offered reimbursement for MSP-associated costs for the period of January 1st - June 30, 2005.
- SEMASS issued reimbursement payments to twenty-eight (28) municipalities/long-term customers as requests were received. Qualified expenses (mercury-related items) were reimbursed at 100% of costs. This equals a participation rate of +45% for the first half of 2006 with average participation at +45% in 2005.
- The overall community reimbursement town participation rate for 2005 was 53%.

Below are some highlights of SEMASS efforts to support community HHP days:

- SEMASS conducted ongoing editing of our database of community contact person.
- SEMASS provided funding support to the Cape Cod Cooperative Extension for HHP advertisement of HHP events for all Cape Cod and Martha's Vineyard SEMASS communities.
- SEMASS provided funding support to the South Shore Recycling Cooperative (SSRC) for costs associated with printing of household hazardous waste event flyers.

- SEMASS proved funding support to the Town of Braintree Recycling Committee for support of HHP and thermometer exchange events in 2005.
- In conjunction with Task 3.2, SEMASS provided materials to the Carver-Marion-Wareham-Rochester Regional Refuse Disposal District and the Educational Leadership for Civic Responsibility (ELCR) for support of their community HHP and Thermometer Exchange Activities event held on May 7th.
- In conjunction with Task 3.2, SEMASS received copies of advertisements for the Town of Wrentham's Household Hazardous Product event conducted on May 14th. SEMASS provided the funding for these advertisements.
- On June 30, received copies of advertisement for the Town of Wrentham's ongoing mercury exchange events. SEMASS provided funding for the advertisements on May 3.
- SEMASS helped fund the HHP day for the Town of Braintree that was held October 22nd, 2005. SEMASS provided funding to the town towards placement of a flyer in the *Braintree Forum* and a newspaper ad. The donation funded both the spring and fall household hazardous waste collection days.
- SEMASS provided the Town of Wrentham with a replacement bucket for the collection of mercury and mercury-bearing devices. Complete Recycling Solutions forwarded this bucket directly to the town.
- On November 8th SEMASS provided the Cape Cod Cooperative Extension with 17 buckets to support their mercury device collections.
- On December 12th, SEMASS supported the South Shore Recycling Cooperative with \$4,690.00 to support related costs for local radio advertisements in conjunction with Task 3.2.

3.4 Commercial and Residential Thermostat Program.

This task concentrated on continuing efforts for the collection and reclamation of residential and commercial thermostats through the use of existing programs first established in MSP2.

Some details of these efforts are outlined below:

- Conducted preliminary discussions with the Product Stewardship Institute (PSI) in Lowell, MA regarding thermostat support. We received a preliminary proposal from PSI but did not pursue this during 2005. SEMASS may reconsider using PSI as part of MSP4 efforts, especially if an expanding town/school thermostat collection activity is implemented as part of the new Plan.
- SEMASS supported the Cape Cod Cooperative Extension's (CCCE) May (Martha's Vineyard) and October (Yarmouth – Cape Light Energy Fair) efforts for thermostat exchanges on Cape Cod. On January 20th, SEMASS provided one-hundred and forty-four (144), non-mercury, digital programmable thermostats for CCCE's exchange efforts.
- SEMASS met with Onyx Environmental Services to develop a program to better track thermostat collection buckets at various municipalities and businesses.
- On July 8th, SEMASS supported the Town of Braintree Recycling Committee, with one-hundred (100) Dunkin' Donuts™ coupons and Mercury Thermostat Brochures for a proposed thermostat exchange activity.
- On August 31st, Complete Recycling Solutions (CRS) of Fall River, MA, provided two (2) additional prepaid mercury collection buckets to Advance Air & Heat Company, Inc. of East Freetown, MA, to assist in their ongoing commercial and residential thermostat collection activities.
- On December 7th, SEMASS supported the Town of Sharon with one-hundred (100) Dunkin' Donuts™ coupons to be used for the Town's ongoing thermostat exchange activities.

3.5 School Clean-Outs.

Based on letter notices sent to schools in December 2004, SEMASS supported the collection and reclamation costs of mercury containing devices/products at seven (7) schools in 2005.

Below are some highlights of SEMASS efforts to in regards to school clean-outs:

Completed clean-outs at the following schools:

- Cape Cod Regional Technical High School, Harwich, MA – ONYX Environmental removed various mercury containing devices on February 4th.

- Hingham High School, Hingham, MA – ONYX Environmental removed the following mercury devices on February 4th: two (2) Beckmann thermometers, two (2) medical thermometers, seventeen (17) lab thermometers, one (1) ionization tube, one (1) manometer and one (1) wall barometer.
- Upper Cape Cod Regional Technical High School, Bourne, MA – ONYX Environmental removed the following mercury devices on May 12th: two (2) blood pressure cuffs, two (2) thermometers and two (2) pounds of elemental mercury. SEMASS provided funding assistance in replacing two blood pressure cuffs from the school nursing office with non-mercury replacement instruments.
- Wareham High School, Wareham, MA – Onyx Environmental removed two (2) blood pressure cuffs on May 12th.
- Blackstone-Millville Regional High School, Blackstone, MA – Onyx Environmental removed twelve (12) pounds of mercury bearing devices on June 22nd.
- South Shore Regional Technical School, Hanover, MA – Onyx Environmental removed twenty-nine (29) pounds of mercury bearing devices on June 22nd.
- Blackstone-Millville Regional High School, Blackstone, MA – Onyx Environmental removed approximately five (5) pounds of mercury compounds on August 4th.

3.6 Universal Waste Sheds.

SEMASS continued to offer universal waste sheds (Sheds) to the contracted communities that don't already have one. SEMASS has placed fifty-three (53) sheds-to-date.

- At their request, On July 6th, SEMASS provided the City of Quincy with a Universal Waste Shed.
- On July 8th, SEMASS placed a universal waste shed at the SEMASS Resource Recovery Facility to collect and temporarily store miscellaneous mercury-containing wastes recovered from the Rochester Residential drop-off solid waste Convenience Center. The Convenience Center

provides residential solid waste drop off services for the Towns of Carver, Marion, Wareham, and Rochester.

- On December 2nd, SEMASS provided the Braintree Transfer Station with a Universal Waste Shed. This shed was provided to handle universal wastes brought to the station as part of the daily, residential drop-off activities at the facility.
- As a result of feedback from mercury awareness training sessions in October, on December 30th, SEMASS provided the fifty-two (52) communities that have a Universal Waste Shed with a mercury hazard communication placard for their waste shed along with labels for Universal and Hazardous Waste, information on spill cleanup contractors, and information on test kits to determine if a mercury spill had occurred in their sheds.

Based on feedback received from our communities, the scope of this task going forward will become more involved with periodic maintenance and repair of universal waste sheds going forward in 2006 and beyond.

3.7 Boatyards, Marinas, & Marine Facilities.

As a result of requests by SEMASS stakeholders and per the MSP3 plan, outreach efforts continued to target boatyards, marinas and other marine repair and/or maintenance facilities for mercury-containing products. Bilge pumps that are commonly used in boats often have mercury-containing switches that are frequently replaced when normal routine maintenance is performed on the boats. Furthermore, because many of SEMASS' contracted communities are located on the coast, this task represents a potentially new source of mercury that could be captured for reclamation.

Below are some highlights of SEMASS efforts to support this effort:

- SEMASS issued an overall solicitation letter in June regarding bilge pump float switch recycling/reclamation as part of the MSP program to one-hundred and fifty-one (151) harbor facilities, boatyards and marine facilities in the South Coast, Cape Cod and South Shore Areas.
- SEMASS designed and printed up one thousand (1000) Marine Float Switch Recycling Cards and two-hundred (200) Color Posters for Marine Float Switch recycling and outreach activities.
- On July 27th, SEMASS met with the following marinas and marine facilities due to follow-up requests from the bilge pump float switch

recycling program letter campaign that was conducted on June 9th: Spill buckets and float switch posters were provided to each location for ongoing float switch reclamation.

- Kelly's Marine, Wareham, MA
 - Zecco Marina, Wareham, MA
 - Jesse's Marine, Plymouth, MA
 - Burr Brothers Boats, Inc., Marion, MA
- SEMASS removed four (4) pounds of mercury bearing devices from Burr Brothers Boats, Inc. in Marion, MA, in response to SEMASS' letter campaign conducted in June.

3.8 Appliance / White Good Recycling.

As part of SEMASS' MSP3 Plan, SEMASS engaged the services of Interstate Refrigerant Recovery, Inc. (IRRI) to locate and remove mercury switches from appliances and white goods. A letter campaign to further promote this program at other locations was conducted October 14th. SEMASS sent one-hundred and ninety-five (195) letters to our list of Town Contacts to alert them to IRRI's program to reclaim mercury from white goods. As of the date of this report, response to the mailing and activity related to this task has been minimal. It is our understanding that mercury switches are primarily contained in older white goods and are not as frequently found in newer appliances.

4.0 PROGRAM ADMINISTRATION.

Administration of the MSP program is conducted as part of Task 4.0 and includes implementation of the following activities on an on-going basis:

- General communications with our community members or regional recycling organizations
- Communications with the MADEP or other regulatory personnel
- Internal progress calls and/or meetings with the program team members and management
- Program subcontractor & contractor (i.e. PESI, HAZMATEAM, Onyx, CRS, etc.) management, discussion, coordination, meetings, contracting & payment/account processing
- Tracking program budget and expenditures
- Tracking reclaimed/recycled quantities of mercury, and mercury-containing devices
- Maintenance of program files & records

Further administrative efforts during 2005 also included the following activities:

- MADEP approval of the MSP3 Plan on January 24th
- Preparation, review and submittal of the 2004 Annual Program Report
- Discussions with IWSA, especially with regards to the Task 1.1 radio advertisement campaign
- Interviewing and hiring a new MSP Coordinator (Joanne Qamoos)
- Development of the Business Outreach Plan revision

III. MERCURY RECOVERY RESULTS

The type and quantity of mercury items (elemental or products) that were diverted from the waste stream in 2005 are provided in Table 1 and are broken down by SEMASS community versus device type. The total amount of mercury reclaimed during the 2005 was estimated at an equivalent of 433 pounds of elemental mercury. This quantity was determined using the revised reporting formats and criteria for estimating mercury amounts developed during 2004 in conjunction with MADEP, IWSA, and the WTE firms. These criteria include the use of unit mercury weights by type of device that were developed by NEWMOA and that are incorporated into SEMASS' MSP3 Plan.

As detailed in Table 1, the most common mercury-containing items reclaimed during 2005 were: 1) straight lamp fluorescent bulbs (in various lengths from 1 to 6-feet), 2) 4-inch fever thermometers, 3) blood pressure cuffs, and 4) residential/commercial thermostats. Products in lesser quantities included: other lamps (HID, compact), electrical and float switches, and u-tube fluorescent lamps. The least common devices were barometers and mercury button-cell batteries.

As in prior years, elemental mercury sources dominated the total quantity of mercury reclaimed. With the assistance of PESI, UMass CCC Extension and our contract communities, some large sources of elemental mercury were reclaimed from SEMASS' potential waste stream during 2005. These include some of the following sources

- Sturdy Memorial Hospital, Attleboro, MA. See task 3.1 for a breakdown of the mercury items reclaimed.
- Quincy Medical Center, Quincy, MA. See task 3.1 for a breakdown of the mercury items reclaimed.

- Massachusetts Hospital School, Canton, MA. See task 3.1 for a breakdown of the mercury items reclaimed.
- Brockton Hospital, Brockton, MA. See task 3.1 for a breakdown of the mercury items reclaimed.
- Regional Cape Cod Sources; in conjunction with the Cape Cod Cooperative Extension and other town sources were able to reclaim over four-thousand (4000) glass fever thermometers, ten (10) blood pressure cuffs, eight-hundred thirty (830) thermostats, fifty (50) lab thermometers and seventy-nine (79) pounds of elemental mercury.

The breakdown of mercury devices by Program Task is shown on Table 2. The most productive tasks appear to be Task 3.1 Medical and Dental Facilities, Task 3.2. Thermometer Exchange Programs, Task 3.3 Community Reimbursement and HHW Support and Task 3.5 School Cleanouts. The least productive tasks were Task 3.7 Boatyards, Marinas and Marine Facilities and Task 3.8 Appliance/White Good Recycling

IV. PLAN EXPENDITURES

SEMASS expenditures on the 2005 MSP program are detailed by task activity on Table 3. Expenditures for 2005 totaled \$285,334 broken down by major task as follows:

- | | |
|--|-----------|
| • Task 1.0 IWSA Education and Outreach: | \$ 50,000 |
| • Task 2.0 Local Education and Outreach: | \$ 57,566 |
| • Task 3.0 Mercury Reduction/Recycling Programs: | \$111,395 |
| • Task 4.0 Program Administration: | \$ 66,372 |

As detailed in Table 3, MSP expenditures were comparable to budget for Tasks 1.0 and 4.0. Expenditures for Tasks 2.0 and 3.0 were slightly less than budgeted but comparable to MSP3 projections going forward.

SUPPORTING TABLES

TABLE 1. SEMASS MSP PROGRAM: MERCURY COLLECTION BY TYPE OF DEVICE & COMMUNITY 2005 TOTALS

Type of Device:	Fluorescent & Other Hg-Containing Lights:												Thermometers:				Blood Pressure:	
	Straight Lamps		Circular Lamps		U-Tube Lamps		Compact Lamps		HID Lamps		4" Glass Fever Type		12" Glass Lab Type		BP Cuffs			
	(L.F.) (g)	Weight Hg (g)	(Each)	Weight Hg (g)	(Each)	Weight Hg (g)	(Each)	Weight Hg (g)	(Each)	Weight Hg (g)	(Each)	Weight Hg (g)	(Each)	Weight Hg (g)	(Each)	Weight Hg (g)		
Community	0.005 g/L.F.	0.0175 g/each	0.0175 g/each	0.0175 g/each	0.0175 g/each	0.0175 g/each	0.0175 g/each	0.0175 g/each	0.035 g/each	1.00 g/each	3.00 g/each	110.0 g/each						
Unit Mercury Weights (U)	2,160	10.8	-	-	-	25	0.44	-	-	57	57	18	54	-	-	-		
Abington	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Acushnet	13,013	65.1	3	0.05	561	9.82	-	-	-	275	275	-	-	-	18	1,980		
Attleboro	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Avon	14,400	72.0	24	0.42	94	1.65	-	-	-	598	598	202	606	-	5	550		
Barnstable	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Bellingham	4,185	20.9	-	-	36	0.63	-	-	-	-	-	-	-	-	-	-		
Berkley	-	-	-	-	-	-	-	-	-	2	2	-	-	-	-	-		
Blackstone	11,760	58.8	0	-	0	-	-	-	-	77	77	2	6	-	1	110		
Bourne	2,470	12.4	2	0.035	6	0.11	-	-	6	0.21	112	-	-	-	-	-		
Braintree	892	4.5	50	0.9	81	1.42	-	-	59	2.07	63	63.00	10	30	-	-		
Brewster	-	-	-	-	-	-	-	-	-	-	-	-	3	9	6	660		
Brockton	8,086	40.4	9	0.2	97	1.70	267	4.67	96	3.36	-	-	-	-	-	-		
Canton	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Carver * (See Region)	2,080	10.4	-	-	24	0.42	25	0.44	10	0.35	29	29	2	6	-	-		
Chatham	4,520	22.6	-	-	64	1.12	-	-	50	1.75	81	81	4	12	-	-		
Cohasset	5,065	25.3	25	0.4	11	0.19	10	0.18	1	0.04	231	231	8	24	-	-		
Dennis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Dighton	6,510	32.6	-	-	104	1.82	30	0.53	-	-	-	-	-	-	-	-		
Duxbury	4,805	24.0	19	0.3	138	2.42	30	0.53	-	-	95	95	1	3	-	-		
Eastham	6,400	32.0	-	-	-	-	-	-	-	-	20	20	-	-	-	-		
Fairhaven	15,306	76.5	12	0.2	73	1.28	36	0.63	-	-	4,610	4,610	6	18	3	330		
Falmouth	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Freetown	1,020	5.1	-	-	-	-	24	0.42	12	0.42	-	-	-	-	-	-		
Halifax	10,596	53.0	-	-	49	0.86	108	1.89	6	0.21	17	17	-	-	-	-		
Hanover	2,720	13.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Hanson	10,400	52.0	20	0.4	436	7.63	2	0.04	60	2.10	47	79	3	9	1	110		
Harwich	-	-	-	-	-	-	-	-	-	-	85	85	2	6	-	-		
Hingham	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Holbrook	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		

TABLE 1. SEMASS MSP PROGRAM: MERCURY COLLECTION BY TYPE OF DEVICE & COMMUNITY 2005 TOTALS

Type of Device: SEMASS Community	Fluorescent & Other Hg-Containing Lights:										Thermometers:			Blood Pressure:	
	Straight Lamps (L.F.) (g.)	Circular Lamps (Each) (g.)	Weight Hg (g.)	U-Tube Lamps (Each) (g.)	Weight Hg (g.)	Compact Lamps (Each) (g.)	Weight Hg (g.)	HID Lamps (Each) (g.)	Weight Hg (g.)	4" Glass Fever Type (Each) (g.)	Weight Hg (g.)	12" Glass Lab Type (Each) (g.)	Weight Hg (g.)	BP Cuffs (Each) (g.)	Weight Hg (g.)
Community	0.005 g/L.F.	0.0175 g/each	0.0175 g/each	0.0175 g/each	0.0175 g/each	0.0175 g/each	0.035 g/each	0.035 g/each	1.00 g/each	3.00 g/each	110.0 g/each				
Unit Mercury Weights (g.)															
Hyannis	-	-	-	-	-	-	-	-	227	227	-	-	-	-	-
Kingston	-	-	-	-	-	-	-	-	14	14	-	-	-	-	-
Lakeville	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Marion * (See Region)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Martha's Vineyard	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mashpee	7,520	37.6	-	207	3.62	160	2.80	135	66	66	15	5	15	-	-
Mattapoisett	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Middleborough	5,520	27.6	-	24	0.42	-	-	-	-	-	-	-	-	-	-
Milton	6,344	31.7	-	24	0.42	-	-	400	100	100	-	-	-	-	-
Norfolk	800	4.0	-	26	0.46	-	-	-	15	15	-	-	-	-	-
Norwell	-	-	-	-	-	-	-	-	38	38	-	-	-	-	-
Orleans	-	-	-	-	-	-	-	-	41	41	9	3	9	-	-
Otis Air National Guard Base	-	-	-	-	-	-	-	-	10	10	-	-	-	-	-
Pembroke	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Plymouth	22,858	114.3	-	440	7.70	-	-	-	43	43	-	-	-	-	-
Plympton	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Provincetown	-	-	-	-	-	-	-	-	12	12	-	-	-	-	-
Quincy	2,808	14.0	-	4	0.07	32	0.56	-	150	150	-	-	-	36	3,960
Randolph	1,724	8.6	-	-	-	-	-	-	-	-	-	-	-	-	-
Rochester * (Also see Region)	3,120	15.6	-	26	0.46	-	-	-	-	-	-	-	-	-	-
Rockland	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-
Sandwich	-	-	-	-	-	-	-	-	60	60	6	2	6	-	-
Scituate	5,620	28.1	38	31	0.54	-	-	-	83	83	-	-	-	-	-
Sharon	1,224	6.1	-	-	-	-	-	-	85	85	-	-	-	2	220
Stoughton	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sudbury	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Truro	5,680	28.4	-	12	0.21	-	-	-	21	21	9	3	9	-	-
Waltham	5,714	28.6	-	32	0.56	-	-	40	-	-	-	-	-	-	-
Wareham * (Also see Region)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wellfleet	-	-	-	-	-	-	-	-	22	22	15	5	15	-	-

TABLE 1. SEMASS MSP PROGRAM: MERCURY COLLECTION BY TYPE OF DEVICE & COMMUNITY 2005 TOTALS

Type of Device; SEMASS Community	Straight Lamps				Fluorescent & Other Hg-Containing Lights:				HID Lamps		4" Glass Fever Type		12" Glass Lab Type		Blood Pressure: BP Cuffs	
	(L.F.)	(g)	Weight Hg (g)	Weight Hg (g)	U-Tube Lamps	Weight Hg (g)	Compact Lamps	Weight Hg (g)	(Each)	Weight Hg (g)	(Each)	Weight Hg (g)	(Each)	Weight Hg (g)	(Each)	Weight Hg (g)
Community	0.005 g/L.F.		0.0175 g/each	0.0175 g/each	0.0175 g/each	0.0175 g/each	0.0175 g/each	0.035 g/each		1.00 g/each		3.00 g/each		110.0 g/each		
Unit Mercury Weights (U)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
West Bridgewater	1,040	5.2	-	-	-	-	-	-	-	70	70	-	-	-	-	-
Weymouth	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Whitman	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wrentham	860	4.3	10	0.18	-	-	10	0.18	-	-	-	-	-	-	-	-
Yarmouth	11,462	57.3	10	0.18	118	2.07	10	0.18	1	0.04	126	126	3	9	-	-
Overall SEMASS Region:	1,920	9.6			126	2.21			2	0.07						
* CMW-R Convenience Center	1,248	6.2	-	-	33	0.58	-	-	2	0.07	-	-	-	-	-	-
SEMASS	672	3.4			93	1.63										
MA Electric Company	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
City of Fall River	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Town of Brockton DPW	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Miscellaneous Cape Cod Area	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Column Totals:	218,194	1,091	222	3.89	2,844	49.77	848	14.84	878	30.73	7,583	7,583	282	846	72	7,920
Mercury Amounts (lbs):		2.4		0.0086		0.110		0.033		0.068		16.72		1.87		17.46

TABLE 1. SEMASS MSP PROGRAM: MERCURY COLLECTION BY TYPE OF DEVICE & COMMUNITY 2005 TOTALS

Type of Device: SEMASS Community	Thermostats:		Electrical Switches & Devices:					Batteries:		Barometers:		Misc. Devices:		Elemental Hg:		
	Residential		Industrial / (Each)	Weight Hg (g)	Large Switches (Each)	Weight Hg (g)	Float Switches (Each)	Weight Hg (g)	Hg Button Cells (Each)		Laboratory - Type (Each)		Number (Each)		Description	Weight Hg (g)
	(Each)	Weight Hg (g)														
Community	4.5 g/each		8.0 g/each	40 g/each	4.5 g/each	0.009 g/each	500 g/each	TBD							ElemWt/Lb	
Abington	14	63.0	-	-	-	-	-	-	-	-	-	-	-	-	-	
Acushnet	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Attleboro	2	9.0	-	-	-	-	-	-	-	2	1,814	72.0	-	-	-	
Avon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Barnstable	135	607.5	21	168.0	75	337.5	-	-	-	-	-	20.5	-	-	-	
Bellingham	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Berkley	7	31.5	-	-	-	1	0.01	-	-	-	-	-	-	-	-	
Blackstone	2	9.0	-	-	-	-	-	-	-	-	-	2.0	-	-	-	
Bourne	82	369.0	35	280.0	1	4.5	-	-	-	-	-	3.0	-	-	-	
Braintree	13	58.5	-	-	-	-	-	-	-	-	-	3.0	-	-	-	
Brewster	38	171.0	-	-	4	18.0	-	-	-	-	-	-	-	-	-	
Brockton	-	-	3	24.0	-	-	-	-	-	-	-	1.0	-	-	-	
Canton	-	-	-	50	2000	-	-	-	-	-	-	-	-	-	-	
Carver * (See Region)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Chatham	33	148.5	3	24.0	8	36.0	-	-	-	-	-	3.0	-	-	-	
Cohasset	1	4.5	-	-	-	-	-	-	-	-	-	-	-	-	-	
Dennis	76	342.0	6	48.0	4	18.0	-	-	-	-	-	1.0	-	-	-	
Dighton	-	-	-	-	-	-	-	-	-	-	-	10.0	-	-	-	
Duxbury	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Eastham	15	67.5	-	-	4	18.0	-	-	-	-	-	3.0	-	-	-	
Fairhaven	2	9.0	-	-	-	-	-	-	-	-	-	-	-	-	-	
Falmouth	97	436.5	30	240.0	65	292.5	-	-	-	-	-	3.0	-	-	-	
Freetown	31	139.5	-	-	-	-	-	-	-	-	-	-	-	-	-	
Halifax	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Hanover	8	36.0	-	-	-	-	-	-	-	-	-	16.0	-	-	-	
Hanson	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Harwich	104	468.0	-	-	45	202.5	-	-	-	-	-	25.00	-	-	-	
Hingham	3	13.5	-	-	-	-	-	-	-	-	-	1.00	-	-	-	
Holbrook	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

TABLE 1. SEMASS MSP PROGRAM: MERCURY COLLECTION BY TYPE OF DEVICE & COMMUNITY 2005 TOTALS

Type of Device: SEMASS Community	Thermostats:		Electrical Switches & Devices:				Batteries:		Barometers:		Misc. Devices:		Elemental Hg: Weight Hg (lbs)			
	Residential		Industrial/ (Each)	Weight Hg (g)	Large Switches (Each)	Weight Hg (g)	Float Switches (Each)	Weight Hg (g)	Hg Button Cells (Each)	Weight Hg (g)	Laboratory - (Each)	Type (g)		Number (Each)	Description (g)	Weight Hg (lbs)
	(Each)	Weight Hg (g)														
Community																ElemWt/Lb
Unit Mercury Weights (U):	4.5 g/each		8.0 g/each	40 g/each			4.5 g/each	0.009 g/each		500 g/each				TBD		
Hyannis							7	31.5								
Kingston	7	31.5		-						-						
Lakeville		-		-						-						
Marion * (See Region)		-		-						-						
Martha's Vineyard	-	-	-	-			-			-					-	4.00
Mashpee	24	108.0	60	480.0			-			-					-	1.0
Mattapoisett		-		-						-						
Middleborough		-		-						-						
Milton	2	9.0		-						-						
Norfolk		-		-						-						
Norwell	8	36.0		-						-						
Orleans	84	378.0	12	96.0			3	13.5		-					-	4.0
Otis Air National Guard Base	5	22.5	1	8.0			-			-					-	
Pembroke		-		-						-						
Plymouth	14	63.0	-	-			-			-					-	
Plympton		-		-						-						
Provincetown	11	49.5	-	-			-			-					-	3.0
Quincy	-	-	-	-			-			-					-	
Randolph		-		-						-						49.0
Rochester * (Also see Region)	-	-	-	-			-			-					-	
Rockland		-	2	16.0						-					-	4.96
Sandwich	83	373.5	23	184.0			3	13.5		-					-	1.0
Scituate	28	126.0	4	32.0						-						14.0
Sharon	12	54.0		-						-						
Stoughton	-	-	-	-			-			-					-	
Sudbury		-		-						-					-	
Truro	14	63.0	-	-			-			-					-	
Waltham	-	-	-	-			-			-					-	
Wareham * (Also see Region)	-	-	-	-			-			-					-	
Wellfleet	17	76.5	3	24.0			1	4.5		-					-	

TABLE 1. SEMASS MSP PROGRAM: MERCURY COLLECTION BY TYPE OF DEVICE & COMMUNITY 2005 TOTALS

Type of Device:	Thermostats:		Electrical Switches & Devices:				Batteries:		Barometers:		Misc. Devices:		Elemental Hg:					
SEMASS Community	Residential		Commercial		Weight Hg	Electrical/ Industrial	Weight Hg	Large Switches	Weight Hg	Float Switches	Hg Button Cells	Weight Hg	Labaratory - Type	Weight Hg	Number	Description	Weight Hg	(lbs)
	(Each)	(g)	(g)	(Each)	(g)	(Each)	(g)	(Each)	(g)	(Each)	(g)	(Each)	(g)	(Each)	(g)	(Each)	(g)	(lbs)
Community																		ElemWt/Lb
Unit Mercury Weights (10%)	4.5	g/each	8.0	g/each	40	g/each	4.5	g/each	0.009	g/each	500	g/each	TBD					
West Bridgewater		-		-		-		-		-		-		-				-
Weymouth	3	13.5	-			-		-		-		-		-				-
Whitman		-				-		-		-		-		-				-
Wrentham		-				-		-		-		-		-				-
Yarmouth	206	927.0	30	240.0			37	166.5			-		-		-			27.0
Overall SEMASS Region:																		
* CMW-R Convenience Center		-		-		-		-		-		-		-				78.0
SEMASS	14	63.0																15.0
MA Electric Company		-		-		-		-		-		-		-				
City of Fall River		-		-		-		-		-		-		-				
Town of Brockton DPW		-		-		-		-		-		-		-				
Miscellaneous Cape Cod Area	225	1012.5	-			-		-		23	103.5		-		-			-
Column Totals:	1,420	6,390	233	1,864	50	2,000	287	1,292	1	0.009	-	-	-	-	4.0	Flow Mtr	1,814	
Mercury Amounts (lbs):		14.09		4.11		4.41		2.85		0.000		-		-			4.0	364.5
Total Mercury Collected during Year (lbs):																		433

TABLE 2. SEMASS MSP PROGRAM: MERCURY COLLECTION BY TYPE OF DEVICE & COMMUNITY 2005 TOTALS

Type of Device:	Fluorescent & Other Hg-Containing Lights:										Thermometers:			Blood Pressure:		
	Straight Lamps (L.F.)	Weight Hg (g)	Circular Lamps (Each)	Weight Hg (g)	U-Tube Lamps (Each)	Weight Hg (g)	Compact Lamps (Each)	Weight Hg (g)	HID Lamps (Each)	Weight Hg (g)	4" Glass Fever Type (Each)	Weight Hg (g)	12" Glass Lab Type (Each)	Weight Hg (g)	BP Cuffs (Each)	Weight Hg (g)
Unit Mercury Weights:	0.005 g/L.F.		0.0175 g/each		0.0175 g/each		0.0175 g/each		0.035 g/each		1.00 g/each		3.00 g/each		110.0 g/each	
1.0 IWSA Education & Outreach																
2.1 Community & School Outreach																
2.2 Business Outreach											4763	4,763.0				
2.3 Hg Handling & Awareness Training																
3.1 Medical & Dental Facilities	17,783	88.9	9	0.16	634	11.10	378	6.62	96	3.36	276	276			60	6,600
3.2 Thermometer Exchange Programs											373	373	3	9.0		
3.3 Community Reimbursement & HHW Support	191,671	958.4	213	3.73	2,138	37.42	310	5.43	657	23.00	2171	2,171	279	837.0	12	1,320
3.4 Commercial & Residential Thermostat Program																
3.5 School Cleanouts	8,740	43.7			72	1.26	160	2.80	125	4.38	0	-	0	-	-	-
3.6 Universal Waste Sheds																
3.7 Boatyards, Marinas & Marine Facilities																
3.8 Appliance/White Good Recycling																
Column Totals:	218,194	1,091	222	3.89	2,844	49.77	848	14.84	878	30.73	7,583	7,583	282	846	72	7,920
Mercury Amounts (lbs):		2.4		0.0086		0.110		0.033		0.068		16.72		1.87		17.46

TABLE 2. SEMASS MSP PROGRAM: MERCURY COLLECTION BY TYPE OF DEVICE & COMMUNITY 2005 TOTALS

Type of Device:	Thermostats:		Electrical Switches & Devices:					Batteries:		Barometers:		Misc. Devices:		Elemental Hg:	
	Residential (Each)	Commercial (g)	Electrical/ Industrial (Each)	Weight Hg (g)	Large Switches (Each)	Weight Hg (g)	Float Switches (Each)	Weight Hg (g)	Hg Button Cells (Each)	Weight Hg (g)	Labaratory - Type (Each)	Weight Hg (g)	Number (Each)		Description (g)
Unit Mercury Weights:	4.5 g/each		8.0 g/each	40 g/each	4.5 g/each	500 / each								TBD	
1.0 IWSA Education & Outreach															
2.1 Community & School Outreach															
2.2 Business Outreach			-					-							11.0
2.3 Hg Handling & Awareness Training															
3.1 Medical & Dental Facilities			2	16	50.0	2,000							2	Flow Meters	80.9
3.2 Thermometer Exchange Programs															39.0
3.3 Community Reimbursement & HHW Support	1385	6232.5	231	1,848			287	###	1	0.009					229.6
3.4 Commercial & Residential Thermostat Program	35	157.5	-	-			-	-							
3.5 School Cleanouts	0	-									0	-			
3.6 Universal Waste Sheds															
3.7 Boatyards, Marinas & Marine Facilities	0	-						-							4.0
3.8 Appliance/White Good Recycling															
Column Totals:	1,420	6,390	233	1,864	50	2,000	287	1,292	1	0.009	0	0	2	Flow Meters	364.5
Mercury Amounts (lbs):		14.09		4.11		4.41		2.85		0.000		-		4.0	

Total Mercury Collected during Year (lbs):

433

TABLE 3. SEMASS MSP PROGRAM: ANNUAL BUDGET VS. EXPENDITURES -- 2005

No. of Contract Communities Served: 62
Tons of Municipal Solid Waste (MSW) Processed: TBD

Task No.	Plan Activity	Annual Budget per MSP3 ⁽¹⁾	CY 2005 Expenditures
1.0	IWSA Education and Outreach	\$ 50,000	\$ 50,000
2.0	Local Education and Outreach	\$ 70,000	\$ 57,566
2.1	Community and School Outreach	\$ 35,000	\$ 26,737
2.2	Business Outreach	\$ 20,000	\$ 19,247
2.3	Mercury Handling and Awareness Training	\$ 15,000	\$ 11,582
3.0	Mercury Reduction / Recycling Programs	\$ 155,000	\$ 111,395
3.1	Medical & Dental Facilities	\$ 12,500	\$ 27,132
3.2	Thermometer Exchange Programs	\$ 28,500	\$ 11,534
3.3	Community Reimbursement & HHW Support	\$ 35,000	\$ 44,889
3.4	Commercial and Residential Thermostat Program	\$ 26,000	\$ 9,732
3.5	School Clean-Outs	\$ 21,500	\$ 6,217
3.6	Universal Waste Sheds	\$ 11,500	\$ 8,092
3.7	Boatyards, Marinas & Marine Facilities	\$ 12,500	\$ 2,777
3.8	Appliance / White Good Recycling	\$ 7,500	\$ 1,023
4.0	Program Administration	\$ 75,000	\$ 66,372
	Contingency:	\$ 25,000	
	GRAND TOTAL:	\$ 375,000	\$ 285,334

Notes:

- (1) The 2005 CY budget is from the MSP3 Plan dated 11/8/04 for the 30-month period of July '04 through Dec. '06.